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ABSTRACT

A study investigated the efficacy of using the Language Experience Approach (LEA) with a 15-year-old special education fifth-grade rural black student who did not seem to benefit from traditional skills training procedures. The subject was reading below the first grade level and was a sole survivor of two parallel single-subject design studies. Miscue analysis indicated the subject was a nonreader. Subject-dictated stories were typed and used as subsequent reading materials. The first time the subject read his stories, a miscue analysis was performed to establish a baseline performance. The procedure was repeated one day and about one month later to determine progress. Both quantitative and qualitative statistical analyses were performed. Results indicated significant changes between the pre- and post-treatment criterion measures. Specifically, the subject made fewer omissions and fewer meaningless substitutions. Reading speed and fluency also improved. Findings suggest that a combination of LEA and miscue analysis appears to be a promising strategy for helping adolescent nonreaders in the rural black school environment to learn to read and write. (Five tables and four figures of data are included.) (RS)

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Application of Language Experience Approach to Reading-Disabled Special-Education Adolescents in a Rural Black School

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Paper presented at the meeting of the Mid-South Educational Research Association, Knoxville, Tennessee, November 1992

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Abstract

This study was designed to investigate the efficacy of using the Language Experience Approach (LEA) with rural Black students who do not seem to benefit from traditional skills training procedures. The subject was a 15-year old special education fifth graders reading below the first grade level, who was a sole survivor of a two parallel single-subject design studies.

Miscue analysis was used to evaluate subjects' strengths and weaknesses in terms of the number and types of miscues as well as speed and fluency in reading. Subject was determined to be a nonreader. Consequently, LEA and miscue analysis were used as instructional and evaluation techniques, respectively. Subject-dictated stories were typed and used as subsequent reading materials. The first time subject read his stories, a miscue analysis was performed to establish a baseline performance. This procedure was repeated one day and about one month later to determine progress.

Both quantitative and qualitative statistical analyses were performed. Results indicated significant changes between the pre- and post-treatment criterion measures. Specifically, subjects made fewer omissions and fewer meaningless substitutions. Their reading fluency and speed also improved.

The procedures used in this study may help to rescue many rural black adolescents whose academic careers have been jeopardized by inability to read textbooks.

Application of Language Experience Approach to Reading-Disabled Special-Education Adolescents in Rural Black School

Emphasis in research in the area of reading has shifted from searching for internal causes for reading problems to searching for external factors such as conditions under which different learners learn to read. This shift is attributable to the influence of constructivist theory or Schema theory of reading (Tierney 1990). Schema theory views reading as a process of constructing meaning that involves making connections between reader's prior knowledge and textual information. Children learn to read when an appropriate situation is presented that help them call their prior knowledge to bear on the reading materials. This perspective supports the view that reading is an interactive process in which the reader's focus varies along a continuum from primarily text-based process (that is when the reader has only limited amount of prior knowledge) to primarily reader-based process if the reader's prior knowledge is extensive (Lipson and Wixson, 1986). Thus the extent to which reading materials incorporate reader's prior experience affects how easily and how well he/she learns to read. Lipson and Wixson point out that some variation also occurs vertically in information processing in reading. Specifically, higher stages of information processing influence the analysis of information at the lower stages just as information processing at the lower stages influences processing at the higher levels. Each stage, in effect, provides context for the other. This has been found to be true with normal as well as disabled readers. Thus

higher and lower level processes are corequisite in reading.

Studies demonstrated that strategies that activate prior knowledge of the learning disabled help improve comprehension and vocabulary learning, (Sinatra, Berg and Dun, 1985, Bos, Anders, Filip and Jaffe 1987) In a study using three learning disabled subjects Sinatra and Dun (1985) demonstrated that semantic mapping was more effective than direct instruction in helping the learning disabled improve comprehension and develop vocabulary. Pittleman and Johnson (1985) and Bos et al (1987) also demonstrated that Schema activating strategies of semantic mapping, Semantic feature analysis and Semantic syntactic feature analysis were more effective than direct instruction in helping the learning disabled student learn vocabulary and improve comprehension.

The subjects used in most of these studies were readers who read below grade level and just needed to learn concepts and vocabulary associated with some objectives in certain subject areas. Semantic mapping and semantic feature analysis not work so well with learners who have severe reading disability. The current study seeks to apply more suitable techniques to a nonreader by building on the subject's few strengths such as the ability to recognize some sight words and the ability to orally tell stories. All the studies reviewed above used texts that were selected by the researchers and had no connection with the lives and individual experiences of the subjects. In addition, those authors assessed students' needs using standardized tests which might be adequate in diagnosing the general needs of the students but too general and

cumbersome to use to identify specific needs of the learners on periodic basis.

To take advantage of subject's prior knowledge and provide skills instruction within a context, the present researchers plan to use the Language Experience Approach (LEA). The LEA is an instructional strategy which uses the language of the learner to produce the text to be used for instruction. This provides the subject with the opportunity to make use of his/her prior knowledge as a conceptual back drop for the text. The LEA has been effective in helping beginning readers develop enthusiasm for reading and writing (Allen, 1976; Pienaar, 1977). In his study in Canada, Pienaar (1977) demonstrated that LEA had the potential to foster all-round growth in language skills, both in beginning readers and in older children who read below grade level. Pienaar found that LEA was effective with students in both English and French schools. Specifically, students in the second grade progressed from 2.0 in May, 1974 to 3.7 grade equivalence in reading in April, 1975 - almost two grade equivalence increase in one year.

LEA has also been used in the middle school to successfully teach remedial reading students content area vocabulary (Sharp, 1989). It seemed to help students make connection with subject matter and make easy transition from narrative to expository writing. LEA also enabled students to perceive composing and comprehending as reciprocal processes. In view of these successful applications, the present authors plan to use the LEA to help the reading-disabled learner to develop the skills and strategies

necessary for efficient reading.

The current study also utilizes miscue analysis, rather than standardized tests used in previous studies, to assess the strength and needs of the reader on regular basis. Miscue analysis is a technique that is used to analyze differences between expected and actual responses in oral reading. A discrepancy between the two is called a miscue. This technique enables the experimenter to identify the number and nature of miscues in a passage. In a longitudinal study of six children, Goodman (1970) found that the quality of miscues changed with the proficiency of reading over a period of four years. For example, at the beginning of the study, children omitted key words such as verbs and nouns. But as they became more proficient the subjects omitted only function words, such as articles and simple modifiers. They also regressed to correct previously misread sentences. These provide evidence that the subjects have acquired the active process of prediction and confirmation involved in competent reading.

Miscue analysis has certain inherent advantages as a research tool (Goodman, Watson, and Burke 1987). It functions as both quantitative and qualitative instrument. Miscue analysis simultaneously provides a record of the number and frequency of miscues, as well as an insight into why miscues are made, by focusing on the language and thought of the reader. Information obtained from miscue analysis is used to plan instructional programs. Miscue analysis is also powerful in highlighting the strengths and weaknesses of the reader and in pin-pointing specific

and repetitive problems, thus enabling the researcher to distinguish problems originating from the syntactic complexity from those caused by conceptual load of the reading material.

Though LEA and miscue analysis are powerful tools for developmental reading instruction and assessment/diagnosis, respectively, there is little or no evidence, in the literature, to show that these two methods have been used in the same study. The present study plans to combine these techniques to help disabled readers develop their reading skills. The current study is also unique in that it attempts to help the rural Black reading-disabled students make transition from their spoken language, often heavily influenced by their dialect, to reading and comprehending materials printed in standard English. Thus, it hypothesized that:

i. when given instruction using the Language Experience Approach, reading-disabled students will be able to read and write what they can say

ii. when students learn to read using the LEA method, they will be able to generalize this skill to other reading materials (trade books)

iii. LEA will enable students learn the skills that have traditionally been taught in isolation.

In the following section is presented the methodology used in this study.

Method

Subjects

A single-subject design was used in this study. The subject is a 15-year old special education grade six adolescent from a rural elementary school. As is typical of single-subject designs, the subject was "chosen because of a particular clinical or behavioral problem" (Lehman, 1991) -- in this case a reading and writing problem. The subject is a sole survivor of an initially two parallel single-subject design studies.

Instruments and Materials

Results of standardized tests were used by the school system to classify the subject into special education status. Materials used in this study include stories dictated and/or written by the subject, audio and video cassettes of the subject's reading samples, some high-interest low level reading books, and Goodman et al's (1987) Reading inventory alternative procedure.

Procedure

Prior to treatment, the experimenter used the special education teacher's test results of Brigance Diagnostic Inventory of Basic Skills (Brigance, 1977) to determine subject's reading level to be between nonreader and the first grade levels. He also used oral reading miscue analysis Procedures ii and iii (Goodman et al, 1987) to identify the subject's strength and weaknesses. Secondly, the subject was asked to read a passage from a trade book by Frank Litsky (1978). The reading miscues on this passage and the passage that was used in determining subject's reading level served as a multiple baseline for future comparisons. Similarly, subject's writing sample was obtained as a baseline.

During the school year, the experimenter met with the subject two days a week for one hour during scheduled reading periods but in a separate room at the subject's school. The treatment comprised the application of the Language Experience Approach. This entailed having the subject orally tell stories on topics of interest such as how to play pool, fishing, cars, professional basket ball and baseball, while the experimenter wrote down the stories, and later had the stories typed and used as future reading materials for subsequent sessions.

Each time the subject read his own story in print, the experimenter used miscue analysis to analyze the reading. Miscue analysis enabled the experimenter to determine the number and the nature of errors and omissions. While the subject read the material aloud, the experimenter took note of all the miscues to determine the type of help the subject needed with that particular passage. The experimenter helped the subject by supplying the correct word or pronunciation by means of going over the passage with the subject. The subject was given skills instruction and then allowed to study, for homework, those words that he had difficulty with. The experimenter also audio-taped the reading. This was later analyzed for speed and fluency of reading.

Results and Discussion

Because of the nature of the design both qualitative and descriptive statistics were used to analyze the results. The results will be presented according to hypotheses. It was hypothesized that given instruction using LEA, the subject will be

able to read and write what he can say. This hypothesis was tested by comparing initial and subsequent readings of the written copies of subject's stories. Specifically, the number and type of substitutions, average number of miscues per sentence, the percentage of sentences that had substitutions in them, the speed and fluency of reading were compared between the initial reading and second and third readings of the same stories.

Table 1 shows the number of sentences that had miscues in them for each story at the three reading sessions

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Insert Table 1 about here

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while Table 2 shows the average number of miscues per sentence at each reading session. Data in Tables 1 and 2 show that the number of sentences with miscues and the average number of miscues per

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Insert Table 2 about here

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sentence decreased from the first reading to the third reading session for each of the 6 stories. See Figure 1 for a graphical representation of the data. It should be noted that though the average number of miscues per sentence at the first treatment session seemed to fluctuate over time, there appears to be a fairly steady decline in the corresponding numbers at the second as well as the third readings. This may be attributed to a cumulative and transfer effect of the treatment on later reading materials.

Insert Figure 1 about here

This explanation is further supported by the fact that only the slope of the regression line for the first subject-dictated story was steep enough to be significant ($R^2 = 0.996$, $t = -14.89$, $p < .05$) (See Figure 2). The slopes of the subsequent stories were not significant, though negative. Table 2 also shows that the total number, and consequently the mean, of miscues in all the six stories combined decreased from 34 ($\bar{X} = 0.3617$) at the first reading, to 14 ($\bar{X} = 0.1489$) at the second reading and 6 ($\bar{X} = 0.0638$) at the third reading.

Insert Figures 2 about here

Hypothesis one was essentially a learning curve hypothesis. Thus, a regression analysis was performed on the logarithm of the average number of miscues per story and the time in days to test the strength and direction of relationship between average number of miscues and instruction over time. The results of the regression analysis should be taken as exploratory and caution exercised in the interpretation because only one subject was used and also only three data points were available for each story. Additionally, as pointed out by Daniel and Terrell (1992), the learning curve model is best when used at the early phases of production or treatment, in this case. The reason is that once learning has taken place,

improvement ceases and consequently, the correlation with performance is lowered as a result of a ceiling or floor effect. Results of the regression analysis show that the slopes were all negative as expected and that learning appears to have taken place as evidenced in the reduction of the average number of miscues with instruction over time. There was also some evidence of floor effect. Specifically, only the slope of the Pool-story was significant. The Pool-story was the earliest story. It appears that with transference of learning, the average number of miscues per sentence at the first reading of subsequent stories was consistently lower than for the first story and thus differences in the average number of miscues declined rapidly between the first and second readings. As a result, the slopes were no longer steep enough to be significant. This floor effect, then, may explain the apparent lack of relationship between time and reading performance for later stories.

Additionally, the subject's very first story -- about pool game -- was used to evaluate subject's fluency and speed of reading. The story comprises 15 sentences and was earlier dictated by the subject. The initial reading took 20 minutes, had miscues in 10 sentences and was literally incomprehensible. The third reading took seven minutes and had only three miscues which did not change the meaning of the passage and which were both syntactically and semantically acceptable. At this later reading, the subject had learnt to observe the punctuation marks unlike in the first reading. This helped to make the reading more meaningful than at

the first session. Thus, though no statistical test is applied here it is obvious that the speed of reading increased and fluency also improved as expected.

Secondly, the nature of the miscues was also examined to see their effect on the meaning of the passage. It was found that at first readings, a high percentage of miscues were unacceptable both syntactically and semantically and also changed the meaning of the passage. This percentage decreased drastically at the second and third readings. For instance, as shown in Table 3, for the pool story, only 40% of the miscues was acceptable syntactically as compared to 100% at both the second and the third readings. Similarly, 30% of the readings miscues at the first reading was semantically acceptable compared to 100% at both second and third readings. On the other hand, while 90% of the miscues at the first reading changed the meaning of the passage, none of the miscues at the second and third readings did. This implies that the subject was reading better at the second and third readings than at the first and that even though he may still make a few miscues, these are meaningful substitutions and do not change the meaning of the passage. This shows that he can now make better and more accurate predictions about the passage. This finding agrees with that of Goodman (1970) regarding the change in the nature of miscues as a learning takes place as result of instruction over time.

The first hypothesis also stated that the subject will be able to write what he can say. Figures 3 and 4 show the subject's

initial and more recent writing samples. These writing samples were collected six months apart. This again shows progress in the direction hypothesized.

Insert Figures 3 & 4 about here

The second hypothesis stated that the Language Experience Approach will enable students to generalize their reading skills to other reading materials i.e trade books. This hypothesis was tested by first comparing results of miscue analyses performed on a trade book which the subject read first at the beginning of the treatment period and again after six months in the treatment program. Results of miscue analysis from the first reading before the treatment showed that 12 sentences out of 15 had miscues in them, none of the 12 miscues was syntactically or semantically acceptable and each changed the meaning of the sentence (See Table 4). Also the average miscue per sentence was 0.8. The miscue analysis for the second reading showed distinct improvement. Specifically, only four sentences had miscues and of the four, two were syntactically and semantically acceptable and only two involved meaning change. The average number of miscues per sentence declined to 0.26. (See Table 4).

Insert Table 4 about here

The second hypothesis was also tested by having the subject

read a story from a high interest and low difficulty trade book which had been classified to be between the third and fourth grade reading levels. The story comprised 20 sentences with an average length of 11 words per sentence. Results of miscue analysis showed that there were only three miscues one of which was syntactically and semantically acceptable and did not change the meaning of the sentence. As an additional support that the subject was able to generalize newly acquired ability to reading trade books, two other students who had similar classification as the subject still could not read the story. Finally, the subject has been reclassified as reading between the third and fourth grade level. Thus, the treatment raised subject's reading level from 0 to 1 in April to 3 to 4 in October of the same year. This result supports Pienaar's (1977) finding that LEA could raise students' reading level considerably within a fairly short time. The third hypothesis expects that the subject will learn, through the LEA, the skills that have traditionally been taught in isolation. These include such reading skills as decoding, spelling, phonics, etc. At the onset of this study, the subject did not show any knowledge of the relationship between letters and sounds. Six to seven months later, he sounds out unfamiliar words, he uses spelling patterns to figure out words, and uses the context clue to predict words as demonstrated by his substituting words with synonyms.

One could argue that these results are due to maturation or history and are confounded with regular classroom teaching. To respond to that, two other students of same age and similar

diagnosis who were not in the treatment were given the reading materials that the subject can now read. These two students are still nonreaders, and still have not learnt the relationship between letters and sounds and consequently, still do not sound out unfamiliar words as the subject now does. For ethical and moral reasons, these two other students who served as nonequivalent control group are now receiving instruction using the LEA and miscue analysis.

In general, the results of this study verify Lipson and Wixson's (1986) suggestion that reading-disabled students will learn to read if conditions that connect with students' personal experiences are created. An interesting incidental finding was observed in this study. Specifically, the subject's motivation to read and learn has improved greatly as a result of his LEA activities. The subject felt proud and excited when he saw his own story in print. When he encountered unfamiliar words in later sessions he would say to the experimenter, "Wait, don't tell me, I can do it". He asked the experimenter to hold off on marking a miscue and to allow him more time to figure out the word by himself. Thus miscue marks became negative reinforcers for the subject. The subject is now proudly helping the other two new special education students to read.

In conclusion, a combination of LEA and Miscue Analysis appear to be a promising strategy for helping adolescent nonreaders in the rural Black school environment to learn to read and write. Preliminary observations show that the newly acquired reading skill

is positively influencing the subject's performance in other subject areas. This study also tends to suggest that the LEA, which until now has been restricted to the teaching of comprehension and vocabulary to the very young, may be equally effective with the teaching of reading to reading disabled adolescents. It is recommended that techniques used in this study be replicated on a larger sample to verify external validity.

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Table 1. Number of sentences per story that have miscues in them

Stories	1st reading		2nd reading		3rd reading	
Stories	Miscues	None	Miscues	None	Miscues	None
Pool game	10	5	4	11	3	12
Fishing	5	12	3	14	1	16
Drugs	7	7	2	12	1	13
Pro-Basketball	3	6	1	8	0	9
Baseball	4	22	4	22	1	25
Cars	5	9	0	14	0	14

Table 2. Average number of miscues per sentence

Stories	1st Reading	2nd Reading	3rd Reading
Pool game	0.67	0.27	0.2
Fishing	0.29	0.18	0.06
Drug	0.50	0.14	0.07
Pro-Basketball	0.33	0.12	0.0
Baseball	0.15	0.12	0.03
Cars	0.36	0.0	0.0
Total miscues	34	14	6
Total Sentences	94	94	94
Overall Average Miscue per Sentence	0.3617	0.1489	0.0638

Table 3. Nature of Miscues: Are the Miscues Syntactically and Semantically Acceptable and Is the Meaning Changed?

	1st Reading			2nd Reading			3rd Reading		
Stories	Syn	Sem	MnC	Syn	Sem	MnC	Syn	Sem	MnC
	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pool	40 %	30%	90%	100%	100%	0%	100%	100%	0%
Fishing	40	40	100	67	67	0	100	100	0
Drugs	29	43	57	100	50	100	0	100	100
Pro-Basketball	33	33	67	100	100	0	No miscues		
Baseball	0	0	100	33	33	33	0	100	0
Cars	20	40	80	No miscues			No miscues		

Table 4. Comparison of Subject's Pre- and Post Reading Performances On a Trade Book

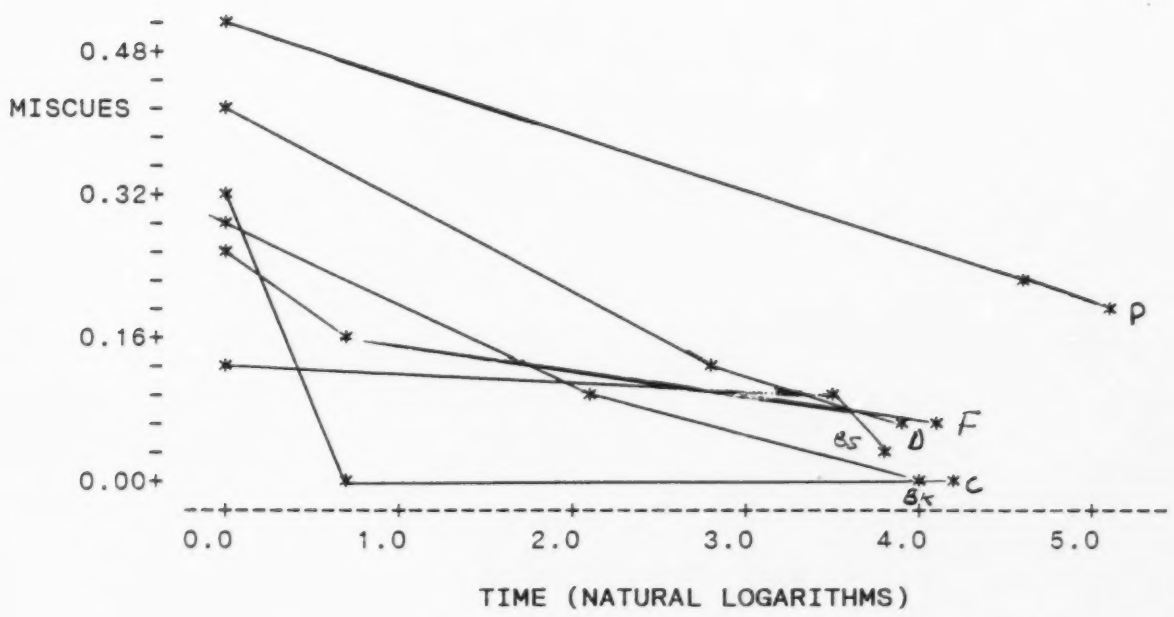
	1st Reading (4/6/92)			2nd Reading (10/6/92)		
	Miscue Analysis			Miscue Analysis		
Sentence Number	Syn	Sem	MnC	Syn	Sem	MnC
1	N	N	Y	No Miscue		
2	N	N	Y	No Miscue		
4	N	N	Y	No Miscue		
5	N	N	Y	Y	Y	N
6	N	N	Y	No Miscue		
7	N	N	Y	No Miscue		
8	No Miscue			Y	Y	N
9	N	N	Y	No Miscue		
10	N	N	Y	No Miscue		
11	N	N	Y	N	N	Y
12	N	N	Y	No Miscue		
13	N	N	Y	No Miscue		
14	N	N	Y	N	N	Y
Average Miscue Per Sentence	0.80			0. 26		

Table 5. Logits of average number of miscues per sentence and the natural logarithms of the time, in days, of reading sessions

POOL	FISHING	DRUGS	BSKTBALL	BASEBALL	CAR
0.510826	0.257829	0.405465	0.287682	0.143101	0.30538
0.236389	0.162519	0.133531	0.105361	0.109213	0.00000
0.182322	0.057158	0.068993	0.000000	0.037777	0.00000

LNPLTM	LNFISHTM	LNDRGTM	LNBBTM	LNBSETM	LNCARTM
0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
4.60517	0.69315	2.77259	2.07944	3.46574	0.69315
5.09375	4.11087	3.93183	3.97029	3.78419	4.23411

FIGURE 1. AVERAGE NUMBER OF MISCUES PER SENTENCE AT THREE READING SESSIONS



Legend:

BK = Basketball Story

BS = Baseball Story

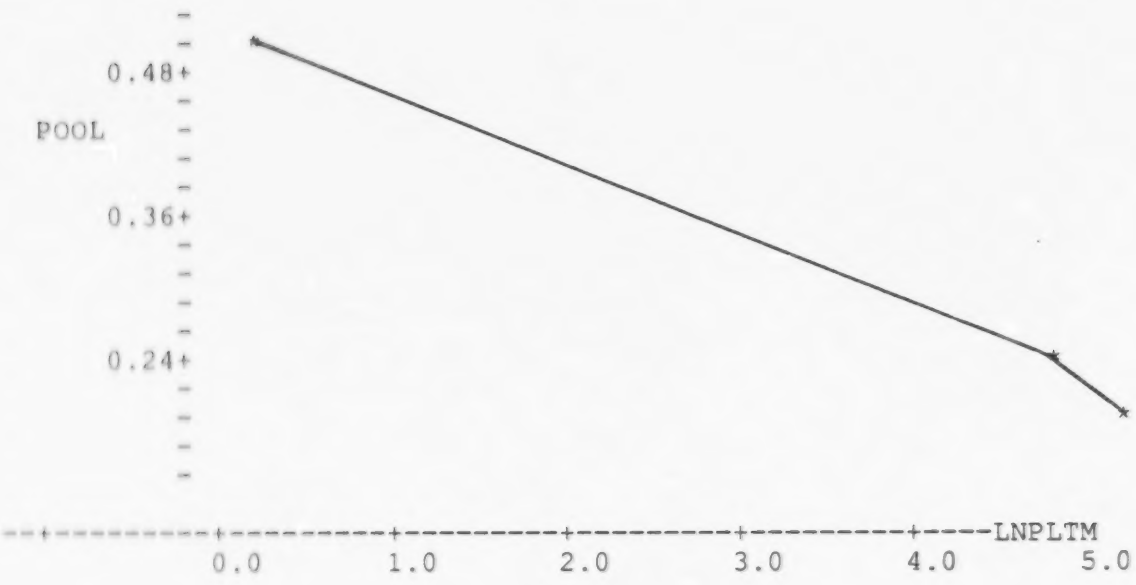
C = Car Story

D = Drug Story

F = Fishing Story

P = Pool Story

Figure 2. Regression analysis of the average number of miscues per sentence in the pool story regressed on the time, in days, of reading sessions



(Y-axis = Logits of average number of miscues per sentence)
LNPLTM = Natural log. of the time intervals for the pool story

The regression equation is

POOL = 0.512 - 0.0625 LNPLTM

Predictor	Coef	Stdev	t-ratio	p
Constant	0.51201	0.01665	30.75	0.021
LNPLTM	-0.062532	0.004199	-14.89	0.043

s = 0.01669 R-sq = 99.6% R-sq(adj) = 99.1%

Analysis of Variance

SOURCE	DF	SS	MS	F	p
Regression	1	0.061773	0.061773	221.74	0.043
Error	1	0.000279	0.000279		
Total	2	0.062051			

Assignment Antonym

Study the words and make 3 sentences with each of the words for Tuesday, 5/26/92

operete
operator
operation
clothes
straighten
laugh

operete that car and put
it to the mall that so
we can shop all day.

operator what to do on
my thop telephone you get it

Some body it to fix it.

We got a drugs operation
to Pop bust up They got
to musts drugs now so get the drugs now
lets go to the mall and shop
for Clothes today ok.
Five per cent off.

28

FIGURE #3: WRITING SAMPLE 1

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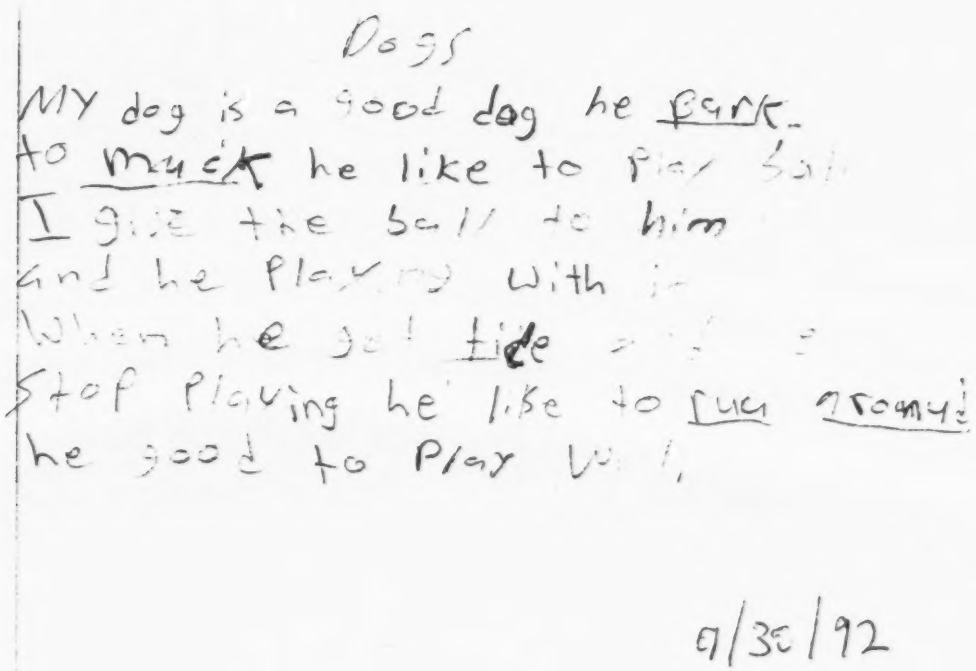
Dogs
MY dog is a good dog he bark.
to much he like to play
I give the ball to him
and he playing with
When he get tide
stop playing he like to run roamy
he good to play
9/30/92

FIGURE #4: WRITING SAMPLE 2

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